SUMMARY

DNA INVESTIGATION IN THE EBC IN NON-SMALL CELL LUNG CANCER

Long-term exposure to carcinogens may lead to changes in the genes which control cell proliferation by the way of impairment in the genetic structure. When mutations develop on the oncogenic and/or tumor suppressor genes, it would be an initial step in the tumor development.

EBC, one of the materials which is used to detect mutations in the early period, is collected by completely non-invasive a technique which has no risk for the patient. There are limited study which investigated the genetic examinations in the EBC. We aimed to investigate whether EBC samples are suitable for the detection of DNA or not in NSCLC and control patients.

26 NSCLC patients and 20 male patients who had no lung cancer were included in the study. EBC procedure was performed by the help of Eco Screen- Jaeger device in 10-15 minutes during breathing at the tidal volume. DNA was isolated invitek tissue spin-column DNA isolation kit in the collected EBC.

DNA amount was two fold high in the NSCLC group than non-cancer patients in spite of short time ($p>0,05$). However, in cancer group, when comparing the groups which had endobronchial lesion or hadn't, DNA amount was found lower in patients who had endobronchial lesions than hadn't ($p>0.05$). Although, there was no relationship between DNA amount and EBC collection time, collected sample amount and volume of expiration air volume in the cancer group, there was a positive relationship between DNA amount and EBC collection time in the non-cancer group.

This may be explained by the pathological changes which occur at the cellular level in the lungs during cancer development process. However, it may also result from relative decrease which develops from redundancy of EBC volume in the non-cancer group. It may be considered that DNA source in EBC is the pathological changes of the systemic inflammatory response other than localized lesion in the lungs. Since detectable level of DNA is found to be in EBC samples, EBC may be considered as a non-invasive method in screening the risk groups and/or the follow-up prognosis in diagnosed patients.

Key words: NSCLC, Exhaled Breath Condensate, DNA